

AIR FORCE QUALIFICATION TRAINING PACKAGE (AFQTP)



**for
ELECTRICAL POWER PRODUCTION
(3E0X2)**

**MODULE 14
AUTOMATIC TRANSFER PANELS**

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Career Field Education and Training Plan (CFETP) references from 1 Apr 97 version.

OPR: HQ AFCESA/CEOT

Certified by: HQ AFCESA/CEO
(Colonel Lance C. Brendel)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

AIR FORCE QUALIFICATION TRAINING PACKAGES

for

ELECTRICAL POWER PRODUCTION

(3E0X2)

INTRODUCTION

Before starting this AFQTP, refer to and read the “Trainee/Trainer Guide” located on the AFCEA Web site <http://www.afcesa.af.mil/>

AFQTPs are mandatory and must be completed to fulfill task knowledge requirements on core and diamond tasks for upgrade training. *It is important for the trainer and trainee to understand* that an AFQTP does not replace hands-on training, nor will completion of an AFQTP meet the requirement for core task certification. AFQTPs will be used in conjunction with applicable technical references and hands-on training.

AFQTPs and Certification and Testing (CerTest) must be used as minimum upgrade requirements for Diamond tasks.

MANDATORY minimum upgrade requirements:

Core task:

AFQTP completion
Hands-on certification using the included Performance Checklist

Diamond task:

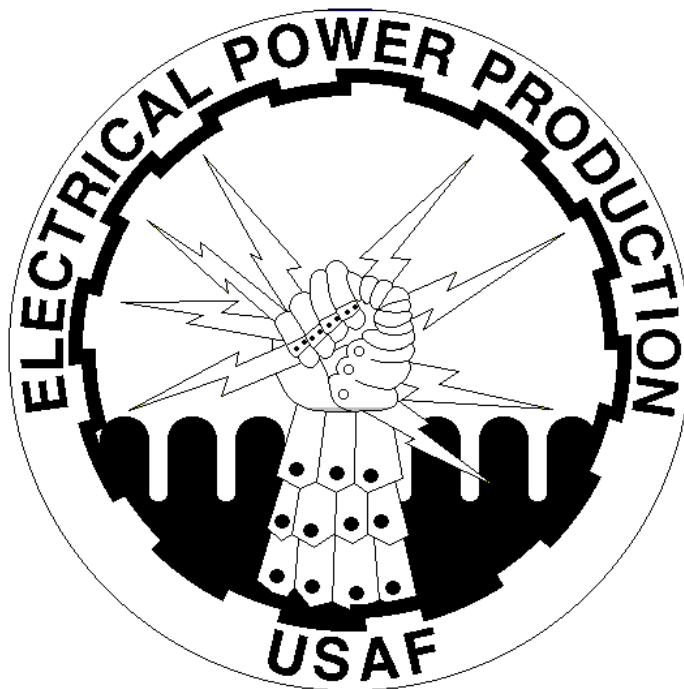
AFQTP completion
CerTest completion (80% minimum to pass)

Note: *Trainees will receive hands-on certification using the included Performance Checklist when equipment becomes available either at home station or at a TDY location.*

Put this package to use. Subject matter experts under the direction and guidance of HQ AFCEA/CEOT revised this AFQTP. If you have any recommendations for improving this document, please contact the Career Field Manager at the address below.

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AUTOMATIC TRANSFER PANELS

MODULE 14

AFQTP UNIT 1

USE WIRING DIAGRAMS (14.3.)

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USE WIRING DIAGRAMS***Task Training Guide***

STS Reference Number/Title:	14.3. Use Wiring Diagram
Training References:	<ul style="list-style-type: none">• CD-ROM, Automatic Transfer Panels• Manufactures Manuals
Prerequisites:	<ul style="list-style-type: none">• Possess as a minimum a 3E032 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none">• Automatic Transfer Panel (ATP) and applicable electrical drawings
Learning Objective:	<ul style="list-style-type: none">• Interpret electrical wiring diagrams
Samples of Behavior:	<ul style="list-style-type: none">• Identify and describe the operations of the ATP• Understand and interpret electrical wiring diagram• Define components and their operations
Notes:	
	<ul style="list-style-type: none">•

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USE OF WIRING DIAGRAMS

Background: The automatic transfer panel is a system of electrical circuits and devices used to protect critical electrical loads against loss of power. The ATP is connected to both normal and emergency circuits. In the event of power loss from the normal source, the ATP will sense the loss of power, start the emergency generator and automatically transfer the load to the emergency source. The reverse will occur when the normal power source returns. Understanding this process will directly determine how you use and understand the electrical wiring diagrams.

Wiring diagrams are the road maps for electrical equipment. Interpreting diagrams accurately is the difference between a craftsman who is able to solve an electrical problem with a professional, systematic approach. Versus a craftsman who taps on relays with a screwdriver or replaces relays without knowing whether they are bad or not, hoping to find a correction to a problem without ever finding the cause. Interpreting diagrams may be the most challenging task of a Power Production Craftsman's duties. This is a most essential task if you are to keep your electrical equipment performing at peak operating conditions.

To accomplish this lesson, complete CD-ROM 3E0X2-14 (Automatic Transfer Panels).

NOTE: After completing all the lessons you may see your Unit Education and Training Manager to take the following optional Certest:

Test no.
8086

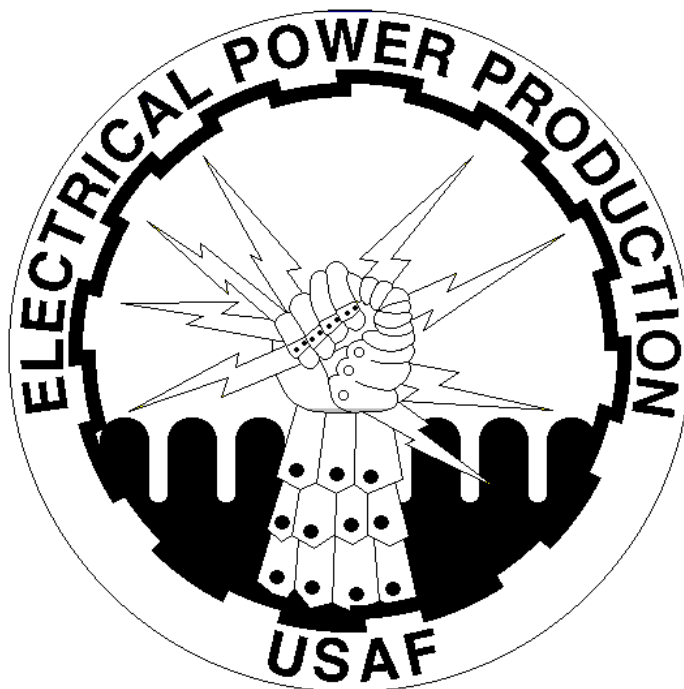
Title
Automatic Transfer Panels

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AUTOMATIC TRANSFER PANELS

Performance Checklist		
Step	Yes	No
1. Identified components on the electrical diagram		
2. Identified the different circuits in the ATP using the wiring diagram		
3. Differentiated between AC/DC circuits		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



AUTOMATIC TRANSFER PANELS

MODULE 14

AFQTP UNIT 1

TROUBLESHOOT (14.4.)

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TROUBLESHOOT***Task Training Guide***

STS Reference Number/Title:	14.4. Troubleshoot
Training References:	<ul style="list-style-type: none"> • CD-ROM, Automatic Transfer Panels • Applicable Manufactures Manual
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a 3E032 AFSC.
Equipment/Tools Required:	<ul style="list-style-type: none"> • Multimeter • Automatic transfer panel • Wiring diagram
Learning Objective:	<ul style="list-style-type: none"> • Troubleshoot automatic transfer panel.
Samples of Behavior:	<ul style="list-style-type: none"> • Trainee will take proper safety precautions while troubleshooting an ATP • Identify symptoms of malfunctions and determine the cause of the malfunction
Notes:	
	<ul style="list-style-type: none"> •

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AUTOMATIC TRANSFER PANELS TROUBLESHOOT

Background: Troubleshooting is without a doubt the toughest part of our job; your ability to do so depends directly on your ability to interpret electrical wiring diagrams. Wiring diagrams are the road maps for electrical equipment. Interpreting diagrams is a tough and challenging skill that used a process to ensure satisfactory results. Understanding this process will separate you from a craftsman who taps on relays with a screwdriver or replaces relays without knowing whether they are bad or not, hoping to find a correction to a problem without ever finding the cause. Interpreting diagrams may be the most challenging task of a Power Production Craftsman's duties. It is also a most essential skill if you are to keep your electrical equipment performing at peak operating conditions.

To accomplish this lesson, complete CD-ROM 3E0X2-14 (Automatic Transfer Panels).

NOTE: After completing all the lessons you may see your Unit Education and Training Manager to take the following optional Certest:

Test no.
8086

Title
Automatic Transfer Panels

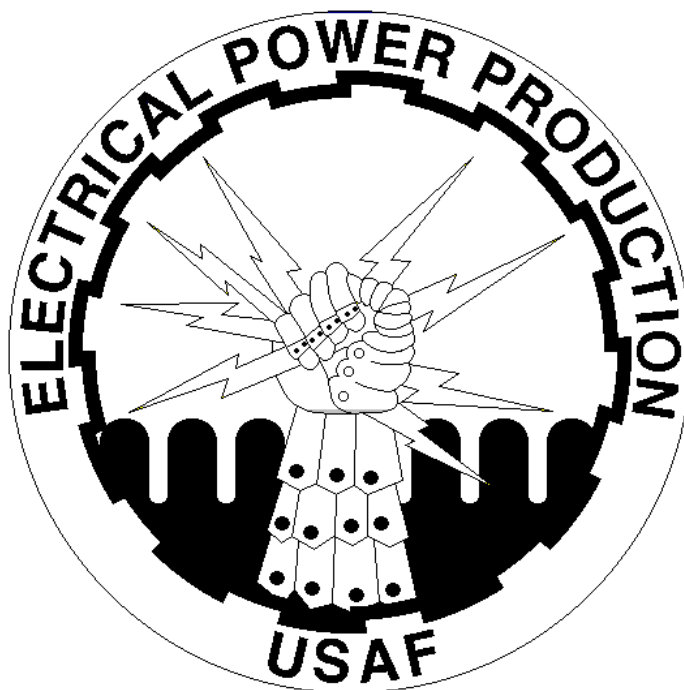
Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

AUTOMATIC TRANSFER PANELS TROUBLESHOOT

Performance Checklist		
Step	Yes	No
1. Understood basic ATP operations		
2. Practiced safety during task performance		
3. Properly prepared the generator set		
4. Properly prepared the ATP		
5. Answered direct troubleshooting questions related to each component		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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AUTOMATIC TRANSFER PANELS

MODULE 14

AFQTP UNIT 1

INSPECT (14.5.1.)

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INSPECT***Task Training Guide***

STS Reference Number/Title:	14.5.1. Inspect
Training References:	<ul style="list-style-type: none"> • CD-ROM, Automatic Transfer Panels • CDC • Manufactures Manuals
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a 3E032 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Automatic Transfer Panel • Inspection checklist
Learning Objective:	<ul style="list-style-type: none"> • Follow procedures, identify components and perform systematic inspection process.
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee will inspect an automatic transfer panel • Trainee will be able to identify and properly inspect the different components in an ATP
Notes:	
	<ul style="list-style-type: none"> •

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INSPECT

Background: An important aspect of the Electrical Power Production duties is the ability to maintain the working integrity of automatic transfer panels. Your close attention to detail while inspecting the ATP will prevent equipment failure or even mission degradation due to the inability to transfer the load to the emergency source. Remember these systems must operate properly to provide reliable backup power to the customer at a moments notice under the worst possible conditions. Simple inspections will enable detection of potential problems before the happen, saving time and money.

To accomplish this lesson, complete CD-ROM 3E0X2-14 (Automatic Transfer Panels).

NOTE: After completing all the lessons you may see your Unit Education and Training Manager to take the following optional Certest:

Test no.
8086

Title
Automatic Transfer Panels

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**INSPECT
AUTOMATIC TRANSFER PANELS**

Performance Checklist		
Step	Yes	No
1. Safely inspected automatic transfer panel		
2. Noted discrepancies		
3. Recorded findings in log		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.